

ABSTRACT

A method and apparatus for generating and controlling volume of a speaker of an appliance is disclosed. The appliance includes an IC chip connected to an amplifier subsystem. The IC chip includes a square-wave audio signal generator, a counter, a register, a comparator, and an AND gate. These components of the IC chip are used to generate modulated audio frequency square-wave signal. The modulated audio frequency square-wave signal having pulses, each pulse has a width determined by the volume control value. The modulated audio frequency square-wave signal is sent from the IC chip to the amplifier subsystem on a single connection. At the amplifier subsystem, the modulated audio frequency square-wave signal is integrated over, filtered, and amplified to drive a speaker to produce the desired sound. By adjusting the volume control value, the widths of the pulses, thus the volume of the produced sound can be controlled.